

Real-world perspective on career of pharmaceutical physicians in India: A working report (2018)

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Abstract

Background: Pharmaceutical physicians support drug development in various capacities and contribute tremendously to the healthcare system. However, there is lack of substantial information on career progression of pharmaceutical physicians in India.

Materials and Methods: This cross-sectional survey involved distribution of a questionnaire via internet, to be self-administered and returned electronically from March 1, 2018, to May 31, 2018 (3 months). Respondents were pharmaceutical physicians from India.

Results: Of the 410 surveyed across 32 specialties, 197 completed responses (48%) were analyzed. Top physician specialty noted was *Pharmacology*. *Medical Advisors* constituted bulk responders. *Oncology* and *Medical Affairs* were the preferred therapeutic segment and portfolio, respectively. Medical affairs also recorded the highest physician recruitment and retention figures. Majority cited a need for *Pharmaceutical Medicine* as a specialty curriculum in India. 'MBA' was perceived to be nonenabling for entry-level hires; sensitization through 'industry apprenticeship' was highly recommended in this regard. *Better work-life balance* and *aversion to clinical work* were top reasons for physician influx in the industry. Important challenges at workplace included *diversified work* and *difficult colleagues*. *Work-related issues* were a common basis for most job attritions. Annual compensation figures ranged from INR 10–20 Lakhs (at entry-level) to INR 30–40 Lakhs (at senior-manager level); however, salary dissatisfaction was prevalent (58%). *Lack of information* and *aversion to corporate work culture* were top reasons for physician hesitancy when considering career options in the pharmaceutical industry.

Conclusion: A career in pharmaceutical medicine has tremendous scope for young medical graduates. One should thoroughly explore such career option and inculcate a learner-centric approach.

Keywords: Clinical research, internet survey, medical advisor, pharmacovigilance, questionnaire survey

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Received: 07-10-18, **Revised:** 23-10-18, **Accepted:** 12-03-19, **Published:** 07-05-20.

BACKGROUND

The Indian pharmaceutical industry has witnessed expansive growth in the last decade. It was valued at US\$ 33 billion in 2017.^[1] For the period between FY 2018 and FY 2020, it is projected to grow at 7% to 10% after mid-to-high

double-digit growth over the past 5 years.^[2] Currently, India is the largest provider of generic drugs globally, supplying over 50% of global demand.^[2] In 2017, Indian companies received 304 Abbreviated New Drug Application approvals from the US Food and Drug Administration.^[2] However,

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Quick Response Code:	Website: www.picronline.org
	DOI: 10.4103/picr.PICR_142_18

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How to cite this article: Lahiry S, Gattu S. Real-world perspective on career of pharmaceutical physicians in India: A working report (2018). *Perspect Clin Res* 2020;11:150-7.

only 1.4% of global clinical trials operate in Indian sites, while the country has 16% of the world's population and carries 20% disease burden in the world. Such figures reflect increasingly critical role of pharmaceutical physicians in the country.

Pharmaceutical physicians have a long legacy in India. However, Over the years, their role has expanded into domains such as regulatory affairs, pharmacovigilance, global clinical development, and strategic planning.^[3] Currently, they work in different environments, including regulatory agencies, contract research organizations (CROs), drug companies etc., and have a tremendous responsibility of ensuring safety and the efficacy of new potential treatments.

Of late, many physicians from various subspecialties have successfully transitioned into the pharmaceutical industry. However, most of our current understanding about their role/s are derived from peer-experiences that can be heavily biased. More often, the role has even been misinterpreted due to the aspect of commercialization support that such profiles demand. Accordingly, this study was designed to analyze the working profile of pharmaceutical physicians in India. The study provides useful insights about their career progression and could serve as a useful guide for junior academics contemplating career-options in the pharmaceutical industry.

MATERIALS AND METHODS

A web-based cross-sectional survey was designed targeting pharmaceutical physicians in India. Respondents were required to be physicians currently working in the Indian pharmaceutical, life sciences, or biotech sector. The study having “minimal” risk (as the study did not capture relevant healthcare data) qualified for a waiver of ethics clearance in line with the Institutional Review Board policy.

The survey questionnaire was designed using the online tool, Survey MonkeyTM.^[4] Contact information of respondents were collected through professional networking platforms (e.g., LinkedIn) and/or direct interaction. The survey was open but exclusively distributed to our target audience.

Overall, 410 respondents that met selection criteria were selected randomly, as the national representative sample. Responses were invited through web-links to the online survey (via e-mail). The study portal was “live” (accepting responses) for 90 days (from March 01, 2018 to May 31, 2018), and respondents were instructed to respond within

the timeframe. Monthly reminders were provided to ensure a response was obtained. Disclosure of sensitive personal information was not required.

The survey form was a structured, web-based questionnaire prepared in English. It consisted of an informed consent section followed by open- and closed-ended questions to capture information. Face and construct validation was done by two independent pharmaceutical physicians, whose responses were excluded from the primary analysis.

The initial version was piloted on a convenience sample of 20 respondents in a test-retest mode with relevant revisions of questions in-between. Feedback about survey acceptability and completion time-frame were collected. In accordance with the Checklist for Reporting the Results of Internet E-Surveys,^[5] usability and technical functionality of the online survey was assessed. Changes made in this pilot phase included decreasing the number of questions from 38 to 33 and rephrasing of questions related to “compensation” figures.

The final questionnaire demonstrated satisfactory internal consistency (Cronbach's alpha: 0.857). Respondents had options to edit their responses before the final submission. System checks eliminated the possibility of duplicate responses. The 33 questions in the survey comprised four sections. In broad terms, Section I captured background information. Section 2 assessed current working role. Section 3 recorded remuneration figures. Section 4 evaluated opinion on career progression in the pharmaceutical industry.

For data extraction and analysis, a pretested form was used. Authors performed the data extraction independently. All differences were resolved through arbitration by a senior pharmaceutical physician, until a consensus reached.

RESULTS

Quantitative statistics

Overall, survey demographics reflected 410 respondents across 32 specialties. Eight responses were excluded (as responders did not qualify as “physician” e.g., MSc, Ph.D.). This yielded a raw eligibility estimate of 98%. The overall usable responder rate was 48% (197 completed responses, 98.3% completeness). The survey did not have a probability sample and therefore, no estimate of theoretical sampling error was calculated.

Qualitative statistics

Table 1 represents distribution of 197 survey responses. Majority (89.05%) respondents were full-time employees in the pharmaceutical industry,

Table 1: Distribution of 197 survey responses

Category	Frequency (%)
Age (years)	
25-34	70.59
34-44	22.79
45-54	5.88
≥ 55	0.74
Gender	
Male	13.14
Female	86.86
Academic qualification	
Graduates	18.27
Postgraduates	75.91
Postdoctorates	6.09
Physician category	
Primary care	18.27
Specialists	81.72
Physician specialty	
Pharmacology	82.61
General medicine	7.25
Others	10.14
Industry experience (years)	
1-5 (entry-level)	62.96
5-10 (mid-level managers)	18.52
>10 (senior managers)	18.52
Full-time employment	
Yes	89.05
No	10.95
Clinical experience (years)	
1-5	79.86
5-10	7.91
10-15	9.35
>15	2.88
Prior research experience (years)	
Yes	22.13
No	77.87
Geographic distribution	
Western India	50
Southern India	29
Northern India	10.4
Eastern India	2.9
Top cities	
Mumbai	35
Gujarat	11.4
Bangalore	11
Delhi	10.4
Chennai	8.7
Hyderabad	8.7
Kolkata	1.4
Others	13.4
Portfolio (s)*	
Medical affairs	60.45
PV and drug safety	53.73
Medical communication	30.6
Clinical development	29.85
Strategic affairs	23.88
Regulatory affairs	20.9
Commercialization	17.91
Clinical operations	12.69
Preclinical (and Phase-I)	5.22
Drug discovery	4.48
HEOR	3.73
Others	7.46
Therapeutic segment(s)*	
Oncology	47.06
Cardio-metabolics	39.71
Endocrinology and diabetes	34.56
Respiratory	32.35

Contd...

Table 1: Contd...

Category	Frequency (%)
Infectious disease	29.41
Gastroenterology	28.66
Neurology and psychiatry	26.47
Maternal and pediatric care	19.12
Ophthalmology	11.76
Nutrition	9.56
Digital health	9.56
Medical devices	5.88
Work designation [§]	
MA/RMA/MSL	55.97
PV physician	37.31
Medical managers	20.15
BA/BE investigator	16.42
Clinical research physician	15.67
Medical data reviewer	11.94
Medical writer	11.19
Medical director	6.72
Executive leader	3.73
Others	5.22

*Approximately 25% were working across multiple portfolios and therapeutic segments. [§]18.4% had ≥1 working role. MAL: Medical advisor, RMA; Regional medical advisors, MSL: Medical scientific liaison, HEOR: Health economics and outcomes research, PV: Pharmacovigilance, BA: Bioavailability, BE: Bioequivalence

and mostly (70.59%) aged between 25 and 34 years. There was a skewed male representation (86.86%) in the survey data. Nearly one-third had >5 years of work experience in the industry. Top physician specialty was *pharmacology* (82.61%).

Oncology (47.06%) and *cardio-metabolics* (39.71%) were the top two therapeutic segments, depicting greater job prospects. With regard to portfolios, *Medical Affairs* (60.45%) and *Pharmacovigilance and Drug Safety* (53.73%) saw higher representation, indicating more opportunities for recruitment. *Medical Affairs* was also cited as the “preferred” division (42.74%) by most respondents, with better “retention” (40.35%) trends [Figure 1].

Majority (75.91%) had completed a medical postgraduation (MD; 75.91%), and had 1–5 years of clinical experience. However, more than two-thirds lacked prior experience in clinical research or industry-related work.

Interestingly, 69.35% of respondents believed that *industry apprenticeship* were better programs for sensitization of entry-level hires, compared to an “MBA,” which majority (46.34%) found critically non-enabling [Figure 2]. Moreover, 94.87% of respondents strongly indicated a need for *Pharmaceutical Medicine* as a specialty medical curriculum in India.

Overall, most respondents (77.19%) were enthusiastic about careers options within the pharmaceutical

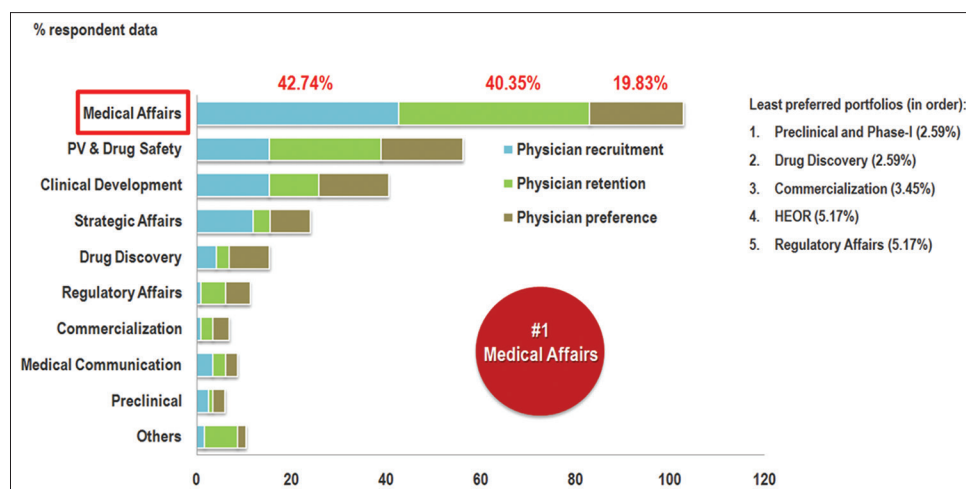


Figure 1: Response distribution according to portfolio preferences

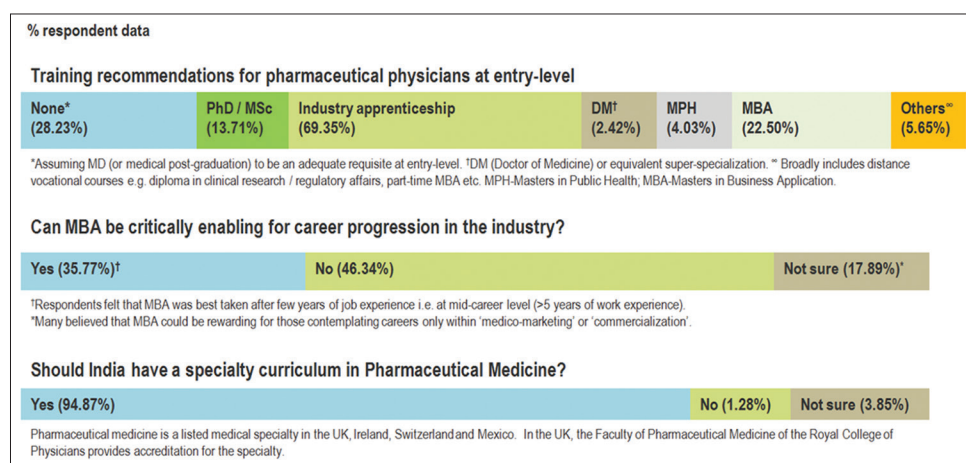


Figure 2: Skills and knowledge needs assessment for pharmaceutical industry

industry. Commonest reasons for preferring job-options in the pharmaceutical industry included better *work-life balance* (54.10%), *aversion to clinical practice* (39.34%), and *better remuneration* (35.25%). Moreover, various job-benefits were also cited, for instance, health-life insurance, annual paid-bonus, paid time-off (usually 20–25 calendar days annually), continuous professional development assistance, etc., [Figure 3].

However, 60.45% respondents also felt that there was some 'hesitancy' among colleagues toward jobs in the industry. mainly due to *lack of information* (about the work-profile), *aversion to corporate culture*, *aversion to travel*, *stigma from peers*, etc., [Figure 4]. Commonest challenges perceived at workplace (leading to most dropouts) included *diversified work*, *difficult colleagues*, and *unfair appraisals*. Job attritions were typically high in early career stages, commonly due to *work-related issues*, *work-location-related issues*, and *salary-related issues* (in order of importance).

Compensation data revealed majority (58%) respondents were dissatisfied with their current pay (or salary) [Figure 5]. Annual remuneration figures ranged between INR 10 and 20 Lakhs (US\$ 13,954–27,908) at entry-level. With increasing seniority, figures were between INR 20 and 30 Lakhs (US\$ 27,908–41,874) for mid-level managers and INR 30–40 Lakhs (US\$ 41,874–55,832) for senior managers.

DISCUSSION

To the best of our knowledge, the current study represents the first report on Indian pharmaceutical physicians in the literature. The study reflects upon alternate career choices within the pharmaceutical industry, having tremendous scope for young medical graduates.

Evolving role of medical advisors

As pointed earlier, medical advisors now form a credible link not only between different functions within a company

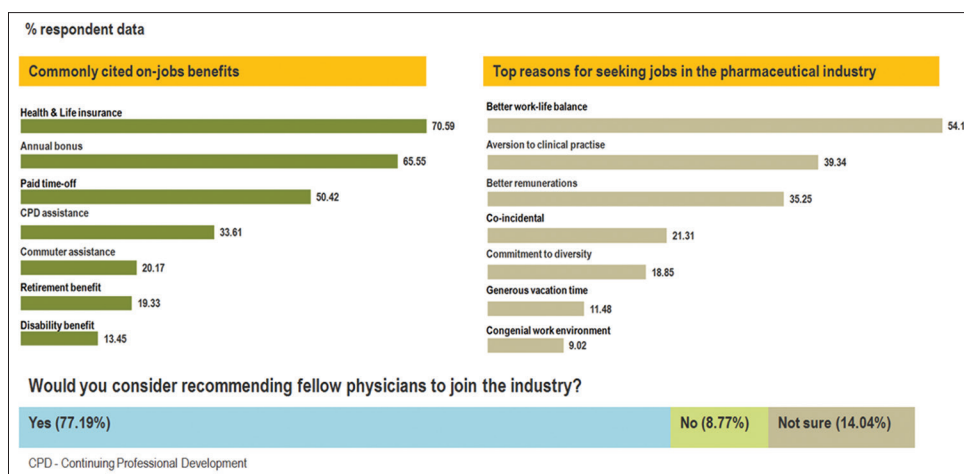


Figure 3: Perception towards pharmaceutical industry

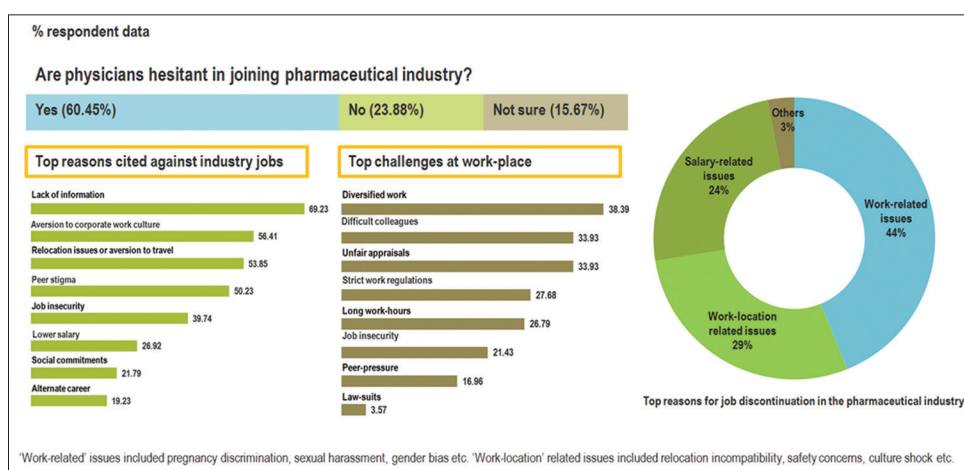


Figure 4: Perception towards pharmaceutical industry: Concerns

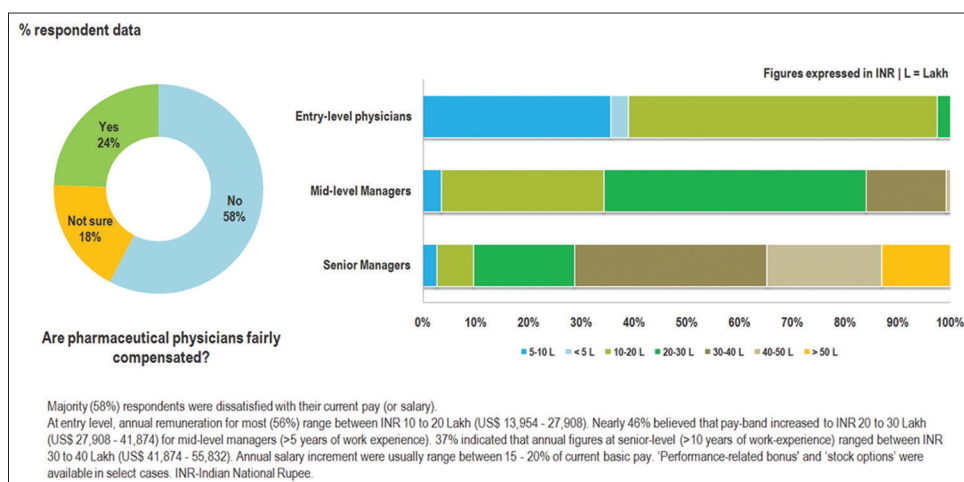


Figure 5: Response distribution according to annual compensation data

but also between the pharmaceutical industry and external stakeholders.^[6] Even as sales representatives are required to restrict discussion to the approved prescribing information of a marketed product, medical advisors can discuss and

exchange scientific information related to other topics, including recent advances, research methodology, and so on. In our study, respondents were mostly working as medical advisors, either field-based or head-office based.

In western countries, field-based medical advisors are often referred as Medical Scientific Liaison (MSL). In India, terms like MSL, medical advisor or regional medical advisor are mostly used interchangeably.

Western and Southern India: Bulk of Pharmaceutical industry thrives here

Zonal trend of survey responses depict that most pharmaceutical and biotech companies, along with companies in the service sector like CROs, information technology that enable the life science companies, are primarily concentrated in the western and southern Indian states. In fact, a recent *McKinsey* report established that metro and tier-I markets, mostly cities in western and southern India, each account for about 30% of the Indian pharmaceuticals market.^[7] As a result, most companies, including multinationals have set-up country headquarters in these zones (e.g., Novartis, Pfizer, Novo-Nordisk, etc.). This certainly represents greater job opportunities in these regions. On the flipside, due to the competitive nature of such assignments and limited vacancies, it might be prudent to also consider, alternate roles like 'clinical research physician', 'BA/BE study co-ordinator' or 'Safety physician' etc. as opposed to the traditional starting roles under 'Medical Affairs'.

Oncology: Lucrative segment

Oncology was the top therapeutic area in our survey, adjudged in terms of the number of pharmaceutical physicians working across this segment. It is mainly because, India's market for oncology drugs has expanded in recent years, rising at nearly 19% a year from 2013 to 2017.^[8,9] There is likely to be a sharp rise in the market share percentage of biologics and targeted anticancer therapy, which is poised to overtake chemotherapy as the preferred treatment option. However, cancer research in India is a complex environment that needs equilibrium in public policy across many competing agendas. This has opened up a multitude of opportunities for pharmaceutical physicians, who must rise to the challenge of identifying major needs across environments such as increased research capacity and training, contributing to regulatory policies in collaboration with government and expediting major drug approvals.

Reinventing the role of Medical Affairs

To commercialize a pharmaceutical product both ethically and effectively, there is a compelling need to bring scientific perspective into the commercial organization. Hence, the role of *Medical Affairs* becomes critical.^[10] which in turns creates a compelling demand for physicians in such roles. In fact, our survey reflected that recruitment trends were comparatively higher for *Medical Affairs*. It was also the

“preferred” division to work for most physicians. Research by *Bain and Company* indicate that global pharmaceutical organizations are now “upgrading” *Medical Affairs* to overcome the challenge of “integrating data and scientific insights along with effective communication with the growing array of stakeholders that influence purchasing decisions.”^[11]

Postgraduate medical research: Scope for improvement

Preliminary data suggest that only a handful of institutes, majority of them publicly funded, account for the bulk of the research output in India.^[12,13] Overwhelming clinical burden leaving little time for academic activities, lack of guidance and inadequate institutional support in the form of research grants and infrastructure are common underlying reasons. Many respondents in our survey (77.87%) lacked prior experience in clinical research, which reflected a need to incorporate greater research-related activities in postgraduate medical curricula.

Pharmacology: Time for a revised medical curriculum

Career opportunities in the pharmaceutical sector have prompted many physicians to take up specialization in subjects like *Pharmacology*, in place of clinical specialties. However, except few premier institutes, hands-on exposure to activities related to pharmaceutical drug development is hardly encouraged. Resultantly, there is an increasing perception of *M.D. Pharmacology* curriculum becoming redundant. The notion was partly reflected in our survey, as most respondents believed that there was a need for a dedicated specialty curriculum in *Pharmaceutical Medicine* in India. In theory, this can be achieved by modifying the existing curriculum and by introducing elective courses that focus on aspects relevant to pharmaceutical drug development.

Sensitization through industry apprenticeship

Many recruiters opine that technical training alone is deficient in many ways, and actual hands-on clinical trial experience is necessary for entry-level hires in the pharmaceutical industry.^[14,15] Students can benefit from good industry-academia collaboration in the form of industry apprenticeship or sub-investigator roles in sponsored clinical studies. This was also evident in our survey results, where industry apprenticeship was a highly recommended training option.

MBA may not be critically enabling at entry-level

There is indecision among many young physicians; whether to pursue an MBA during medical postgraduation. The premise is - jumpstarting careers in the pharmaceutical industry. However, our survey results indicated that MBA was not critically enabling in this regard, at least at an entry-level. Rather, medical postgraduation provided competitive edge in areas such as medical affairs, clinical research, and

pharmacovigilance, the three main areas where physicians are generally recruited. In fact, 28.23% respondents indicated that as a qualification, an “MD” was a preferred requisite at entry-level. Although, many believed that MBA could help in mid-career growth, especially within domains like “medico-marketing” or “commercialization.”

D.M. clinical pharmacology – limited advantage in current pharmaceutical landscape

At present, only 15–16 students get trained in the D.M. (Clinical Pharmacology) super specialization course, compared to nearly 550 students in M.D. (Pharmacology) pass-outs every year.^[16] The basis for super specialization training is to gather better exposure to clinical research. However, the core clinical research industry involved in new drug discovery and development is still evolving in India. As a result, matching opportunities for D.M. (Clinical Pharmacology) in the Indian pharmaceutical arena are limited at the moment.

Pharmaceutical medicine: Need for specialty curricula in India

This study clearly reflected the need for a specialized curriculum in *Pharmaceutical Medicine* in India. It is already a listed medical specialty in the UK,^[17] Ireland, Switzerland,^[18] and Mexico.^[19] In the UK, the Faculty of Pharmaceutical Medicine of the Royal College of Physicians provides accreditation for the specialty. As a medical discipline, pharmaceutical medicine has a recognized international syllabus, training courses with examinations and qualifications. In many ways, introductory basics of pharmaceutical medicine can be found in *Pharmacology*, which was the most common specialty noted among survey respondents.

Addressing the gender-gap

The survey reflected a gap in the female gender representation in the Indian pharmaceutical industry. One possible reason could be lower willingness towards ‘non-clinical’ subjects like Pharmacology. Other reasons, (as reflected in the survey) may include ‘work-related’ issues (e.g., pregnancy discrimination, sexual harassment, gender bias, work-life imbalance, ego clashes, office favoritism, etc.) or “work-location” related issues (e.g., relocation, safety, culture shock, etc). However, several pharmaceutical companies are now encouraging female talent through initiatives under diversity, flexible working hours, etc. Initiatives like “Women of Sanofi: Share and Learn initiative,” “Women in Pharma: Aspire, Lead, Inspire”^[20] have promoted that gender diversity reaps greater financial results for organizations.

Interpersonal skills and workplace diversity

One of the key observations from the survey is regarding the challenges perceived at work place. Diversified work

and difficult colleagues were top concerns among survey respondents. However, there are studies^[21,22] indicating that working in diverse fields, both culturally and professionally can impact career growth positively. Since medical learning is heavily science focused, young physicians hardly inculcate decent interpersonal skills. Moreover, not many organizations today offer training on soft skills to its employees. This could be an area of improvement for young students aspiring to be pharmaceutical physicians, through indoctrination of good interpersonal skills.

Limitations

Overall, our study depicts important trends regarding career progression in the pharmaceutical industry, however there are limitations that are commonly associated with online surveys. First, self-reported data is concerning because there is no guarantee that respondents provided accurate information. Second, a random sample may not be representative of the target population in general, i.e., selection bias. Third, although emailing survey links provide a sampling frame, problems such as multiple accounts, duplicate responses, self-selection bias, and invalid or inactive email accounts make random online sampling problematic. Fourth, very often, responses are influenced by unmeasured factors or remote incidents, such as a hectic working day. Finally, lengthy surveys invite incomplete responses, as questions start feeling redundant. Considering the present report to be a pilot study, such judgments are the logical next step.

CONCLUSION

The study provides a useful description of the current status of pharmaceutical physicians. The data underlines the continuing need to improve clinical research capabilities and addresses physician reluctance in considering careers in pharmaceutical medicine. We found that most respondents are hopeful of a promising career in the industry, and emphasize the scope, challenge, variety, and career development opportunities that the work provides for them.

Acknowledgment

We would like to thank Dr Shouvik Choudhury (Senior Resident– Pharmacology, Burdwan Medical College, Kolkata) and Dr Dwaipayan Sarathi Chakraborty (Junior Resident– Pharmacology, IPGMER, Kolkata) for contributing to the study design. We also extend our heartfelt appreciation towards Dr Preetam Gandhi (Medical Director, Novartis, Basel), Dr Vikas Vaishnavi (Senior Pharmacovigilance Lead, Novartis, Hyderabad) for providing useful study insights.

Financial support and sponsorship

Nil.

Conflicts of interest

None declared.

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